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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/529,919	04/21/2000	Akinori Furuya	032590-055	2803

7590

02/06/2003

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EXAMINER

BERNATZ, KEVIN M

ART UNIT

PAPER NUMBER

1773

DATE MAILED: 02/06/2003

16

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/529,919

Applicant(s)

FURUYA ET AL.

Examiner

Kevin M Bernatz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 13 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-12 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☒ Claim(s) 1-14 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Examiner's Comments

2. Based on applicants' arguments (Paper No. 9, pages 4 – 5), the examiner has interpreted the term "load" as any substance that influences the refractive index of the recording layer and includes protective and dielectric layers.

Election/Restrictions

3. Applicant's election without traverse of Group I, claims 1 - 12 in Paper No. 15 is acknowledged.

Claim Objections

4. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 4 – 6 and 8 – 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Machida ('710).

Regarding claim 1, Machida discloses a magneto-optical recording medium having a recording layer (*Figure 5, element 13*) and a reflective layer (*element 21 and col. 11, lines 6 - 10*) on a substrate (*element 11*) characterized in that the recording layer has a layered structure in which a first magnetic layer (i.e. applicants' "garnet ferrite recording layer") (*element 17, col. 2, lines 50 – 58*), and at least one second magnetic layer (i.e. applicants' "underlayer for the garnet ferrite recording layer") selected from the group consisting of a spinel ferrite layer, a rutile-type oxide layer and a hematite layer are layered (*element 15, col. 2, lines 58 – 60*), wherein the "garnet ferrite recording layer" is formed adjacent to the "underlayer" after the formation of the underlayer (*Figures*).

The limitation "thereby reducing the internal compressive stress of the garnet ferrite layer by the tensile stress provided from the underlayer" is a product-by-process limitation and is not further limiting in so far as the structure of the product is concerned. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. ***The patentability of a***

product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.”

[emphasis added] *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP § 2113. Once a product appearing substantially identical is found, the burden shifts to applicant to show an **unobvious** difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

In the instant case, the prior art product has the substantially identical structure as the claimed product and is therefor deemed to meet the limitations “thereby reducing the internal compressive stress of the garnet ferrite layer by the tensile stress provided from the underlayer” (i.e. a spinel ferrite underlayer followed by a garnet ferrite recording layer deposited on top of the spinel ferrite layer).

Regarding claim 2, Machida discloses tracks wherein the layer structure is recorded is formed at least on the tracks (*Figure 7 and col. 11, lines 40 - 51*). The limitation(s) “on which data are recorded” is (an) intended use limitation(s) and is not further limiting in so far as the structure of the product is concerned. “[I]n apparatus, article, and composition claims, intended use must result in a **structural difference** between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. **If the prior art structure is capable of performing the intended use, then it meets the claim.** In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the

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prior art.” [emphasis added] *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967); *In re Otto*, 312 F.2d 937, 938, 136 USPQ 458, 459 (CCPA 1963). See MPEP § 2111.02. The examiner notes that data can be recorded on the lands or grooves (or both) of the guide tracks (see pertinent prior art cited below – Suzuki et al.)

Regarding claims 4 and 5, Machida discloses embodiments meeting applicants’ claimed limitations (*Figures 4 and 5, where element 11 is the substrate, 13 is the recording layer and 21 is the reflecting layer*).

Regarding claims 6 and 8, Machida disclose thickness values meeting applicants’ claimed limitations (*col. 6, lines 6 – 9 and col. 8, lines 32 – 35 wherein at least the endpoints of the disclosed plus claimed ranges overlap*).

Regarding claims 9, Machida discloses grooves meeting applicants’ claimed limitations (*Figure 7*).

Regarding claims 10 - 12, Machida discloses a transparent layer/load layer meeting applicants’ claimed limitations (*Figures 4, 6 and 7 – element 19; and col. 11, lines 1 – 5*). The examiner notes that element 19 is deemed to be inherently transparent because (a) the materials used are known transparent dielectric materials used in magneto-optical applications, and (b) since the purpose of the layer is to prevent heat from diffusing into the reflecting layer (*col. 11, lines 1 – 5*) the light must be incident on element 19 before being incident on the reflecting layer in order to prevent the heat from diffusing into the reflecting layer. Since the reflecting layer is designed to reflect the laser light, the light must pass through element 19 to be reflected by the reflecting layer.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Machida as applied above, and further in view of Shimokawa et al. (U.S. Patent No. 5,501,913) and Tamari (U.S. Patent No. 5,589,261).

Machida is relied upon as described above.

Machida fails to disclose a recording layer possessing a plurality of both garnet ferrite layers and spinel ferrite layers.

However, Tamari teaches that a plurality of spinel ferrite layers can result in a magneto-optical film having "excellent perpendicular magnetic anisotropy and magneto-optical characteristics" (*col. 4, lines 31 – 61; and col. 9, lines 18 – 48*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Machida to utilize a spinel ferrite layer possessing a plurality of spinel ferrite layers as taught by Tamari in order to produce a layer having excellent perpendicular magnetic anisotropy and magneto-optical characteristics.

Neither Tamari nor Machida disclose a recording layer possessing a plurality of garnet ferrite layers.

However, Shimokawa et al. teach that a plurality of garnet layers can result in a magneto-optical film having fine grains and exhibiting high performance (*col. 2, lines 40 – 67; col. 3, lines 12 – 25; and col. 5, lines 33 – 48*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Machida in view of Tamari to utilize a garnet ferrite layer possessing a plurality of garnet ferrite layers as taught by Shimokawa et al. in order to produce a magneto-optical film having fine grains and exhibiting high performance.

Allowable Subject Matter

9. The following is a statement of reasons for the indication of allowable subject matter: claim 3 is indicated as containing allowable subject matter because the prior art, while teaching using land and grooves for magneto-optical recording media, does not teach or render obvious the use of only garnet ferrite layers between said tracks (i.e. in the grooves).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Suzuki et al. (U.S. Patent No. 5,159,022) disclose a general teaching for a MO data medium with lands and grooves and data recorded on the lands and grooves (*entire disclosure*). Glass (U.S. Patent No. 4,624,901) teach that it is known that ferrites and spinel ferrites have good lattice matching and that spinel ferrites

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can be used as underlayers for other ferrites (*columns 1 – 4 and col. 7, lines 42 – 49*).

Gyorgy et al. (U.S. Patent No. 5,665,465) teach using 2+ thin layered films of ferrites, including spinel ferrites (*col. 2, line 45 bridging col. 3, line 6; col. 3, lines 46 – 49; and col. 6, lines 33 – 64*). Shimokawa et al. (U.S. Patent No. 5,702,793) teach multilayered garnet films wherein the underlayer film is made to have a thickness less than 100 nm (*Abstract and underlined sections*).


11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M Bernatz whose telephone number is (703) 308-1737. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on (703) 308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.



KMB
February 3, 2003



Paul Thibodeau
Supervisory Patent Examiner
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